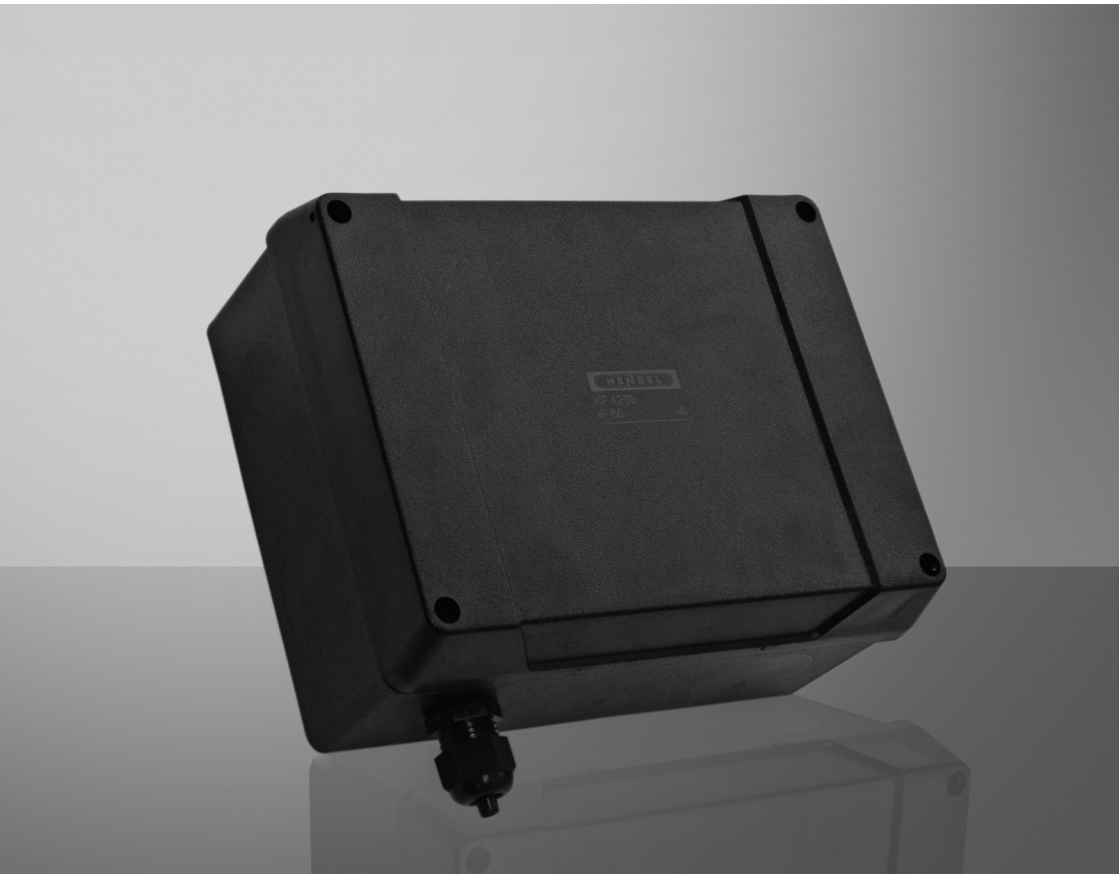
Device for Closing Dead Zones with SMA *Bluetooth*®
Wireless Technology

SMA *BLUETOOTH* REPEATER OUTDOOR

Installation Manual



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EN

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1 Information on this Document

Validity

This document is valid for the following device types as of hardware version A1 and firmware version V 1.07.R:

- BTREP-OUT.GR1
- BTREP-OUT.GR2

Target Group

This document is for skilled persons. Only qualified personnel with the appropriate skills are allowed to perform the tasks described in this manual (see Section 2.2 "Qualification of Skilled Persons", page 8).

Additional Information

Links to additional information can be found at www.SMA-Solar.com:

Document title	Document type
SMA *Bluetooth*® Wireless Technology	Technical description
SMA *Bluetooth*® Wireless Technology in Practice	Technical information

Symbols

Symbol	Explanation
⚠ DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury
⚠ WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury
⚠ CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury
NOTICE	Indicates a situation which, if not avoided, could result in property damage
i	Information that is important for a specific topic or goal, but is not safety-relevant
☐	Indicates an essential requirement for achieving a specific goal
☑	Desired result
✖	A problem that might occur

Typographies

Typography	Usage	Example
bold	• Display messages • Elements of a user interface • Connections • Elements to be selected • Elements to be entered	• The value can be read from the **Energy** field. • Select **Settings**. • Enter the value **10** in the **Minutes** field.
>	• Connects several elements that are to be selected	• Select **Settings > Date**.
[**Button/Key**]	• Button or key to be selected or pressed	• Select [**Next**].

Nomenclature

Complete designation	Designation in this document
PV plant	Plant
Small wind turbine system	Plant
SMA *Bluetooth* Piggy-Back	*Bluetooth* Piggy-Back
SMA *Bluetooth* Piggy-Back Plus	*Bluetooth* Piggy-Back Plus
SMA *Bluetooth* Repeater Outdoor	*Bluetooth* Repeater Outdoor
Sunny Beam with *Bluetooth*® Wireless Technology	Sunny Beam with *Bluetooth*

Abbreviations

Abbreviation	Designation	Explanation
AC	Alternating Current	–
DC	Direct Current	–
LED	Light-Emitting Diode	–
WLAN	Wireless Local Area Network	–

2 Safety

2.1 Intended Use

The *Bluetooth* Repeater Outdoor is used in outdoor installations to close dead zones under unfavourable installation conditions between SMA Solar Technology AG devices by means of *Bluetooth* or to improve poor wireless connections.

The *Bluetooth* Repeater Outdoor is intended for private and industrial use. Use the *Bluetooth* Repeater Outdoor in outdoor installations.

The SMA *Bluetooth* Repeater Outdoor may only be used with supported products:

For safety reasons, it is not permitted to modify the product or install components that are not explicitly recommended or distributed by SMA Solar Technology AG for this product.

The enclosed documentation is an integral part of this product.

- Read and observe the documentation.
- Keep the documentation in a convenient place for future reference.

Only use the SMA *Bluetooth* Repeater Outdoor in accordance with the information provided in the enclosed documentation. Any other use may result in personal injury or property damage.

Supported Products

The SMA *Bluetooth* Repeater Outdoor may only be used with the following SMA Solar Technology AG products:

- All SMA communication products with *Bluetooth*
- All inverters with SMA *Bluetooth* Piggy-Back upgrade. A list of supported inverters can be found in the SMA *Bluetooth* Piggy-Back installation manual.
- All inverters with SMA *Bluetooth* Piggy-Back Plus upgrade. A list of supported inverters can be found in the SMA *Bluetooth* Piggy-Back installation manual.
- SMA PV inverters with integrated *Bluetooth*:
  - SB (Sunny Boy) 3000TL-20/SB 4000TL-20/SB 5000TL-20: from software package 2.06
  - SB 3000TL-21/SB 4000TL-21/SB 5000TL-21
  - SB 2000HF-30/SB 2500HF-30/SB 3000HF-30
  - STP (Sunny Tripower) 10000TL-10/STP 12000TL-10/STP 15000TL-10/STP 17000TL-10
- SMA wind power inverters with integrated *Bluetooth*:
  - WB (Windy Boy) 3600TL-20/WB5000TL-20
  - WB 2000HF/WB 2500HF/WB 3000HF

2.2 Qualification of Skilled Persons

The work described in this document must be performed by skilled persons only. Skilled persons must have the following qualifications:

- Training in the installation and commissioning of electrical devices and plants
- Knowledge of how to deal with the dangers and risks associated with the installation and operation of electrical devices and plants
- Knowledge of all applicable standards and directives
- Knowledge of how an inverter works and is operated
- Knowledge of and adherence to this document and all safety precautions

2.3 Safety Precautions

Electric Shock

Lethal voltages are present in the conductive parts of the inverter.

- Prior to performing any work on the inverter, disconnect the inverter from any voltage sources on the AC and DC sides (see inverter installation manual). Observe the waiting time to allow the capacitors to discharge.

Burn Hazards

Some parts of the inverter enclosure can get hot during operation.

- During operation, touch the inverter on the enclosure lid only.

Environmental Influences

When closed, the *Bluetooth* Repeater Outdoor has the degree of protection IP54.
The *Bluetooth* Repeater Outdoor is thus protected against dust intrusion and water penetration. Dust intrusion and water penetration can damage the *Bluetooth* Repeater Outdoor.

- When the enclosure of the *Bluetooth* Repeater Outdoor is not closed, protect the *Bluetooth* Repeater Outdoor against dust intrusion and water penetration.
- Close the enclosure of the *Bluetooth* Repeater Outdoor again after performing any work on the *Bluetooth* Repeater Outdoor.

Electrostatic Discharge

By touching electronic components, you can damage or even destroy the inverter or the *Bluetooth* Repeater Outdoor through electrostatic discharge (ESD).

- Earth yourself before touching any components of the inverter or the *Bluetooth* Repeater Outdoor.

3 Scope of Delivery

3.1 Order Option Top-Hat Rail Power Supply Unit

Check the scope of delivery for completeness and any externally visible damage. Contact your specialist dealer if the scope of delivery is incomplete or damaged.

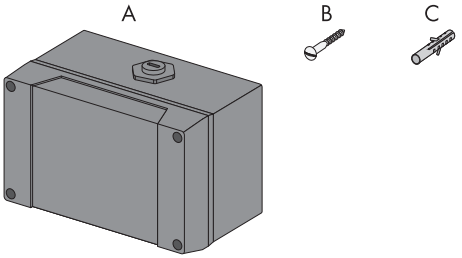


Figure 1: Components included in the scope of delivery with order option top-hat rail power supply unit

Item	Quantity	Description
A	1	*Bluetooth* Repeater Outdoor (device type „BTREP-OUT.GR1“), pre-assembled
B	4	Screw
C	4	Wall plug

3.2 Order Option Power Module

Check the scope of delivery for completeness and any externally visible damage. Contact your specialist dealer if the scope of delivery is incomplete or damaged.

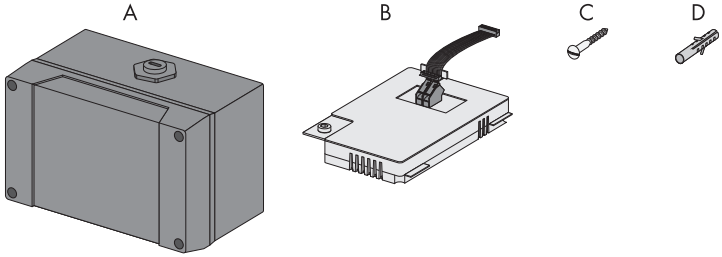


Figure 2: Components included in the scope of delivery with order option Power Module

Item	Quantity	Description
A	1	*Bluetooth* Repeater Outdoor (device type „BTREP-OUT.GR2"), pre-assembled
B	1	Power Module for the voltage supply (for scope of delivery see the installation manual of the Power Module)
C	4	Screw
D	4	Wall plug

3.3 Identifying the SMA *Bluetooth* Repeater Outdoor

You can identify the SMA *Bluetooth* Repeater Outdoor by means of the type label. The type label is on the right-hand side of the SMA *Bluetooth* Repeater Outdoor.

4 Product Description

4.1 Range of Usage

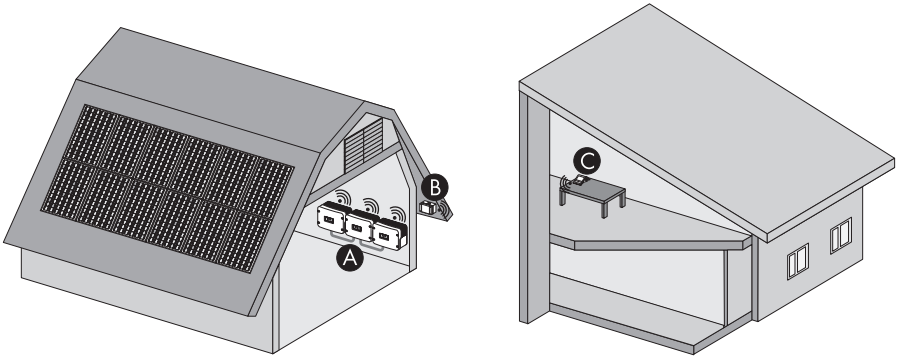


Figure 3: Use of the *Bluetooth* Repeater Outdoor (example)

The *Bluetooth* Repeater is used in outdoor installations to close dead zones under unfavourable installation conditions between SMA Solar Technology AG devices with *Bluetooth* or to improve poor wireless connections.

Item	Description
A	Inverter with *Bluetooth*
B	*Bluetooth* Repeater Outdoor
C	Communication device with *Bluetooth*

4.2 Functions

- Connection to SMA devices with *Bluetooth* via *Bluetooth* Class 1
- Maximum range of up to 100 m in free-field conditions with direct visual contact
- Can be used outdoors, thanks to weatherproof enclosure

4.3 Device Overview

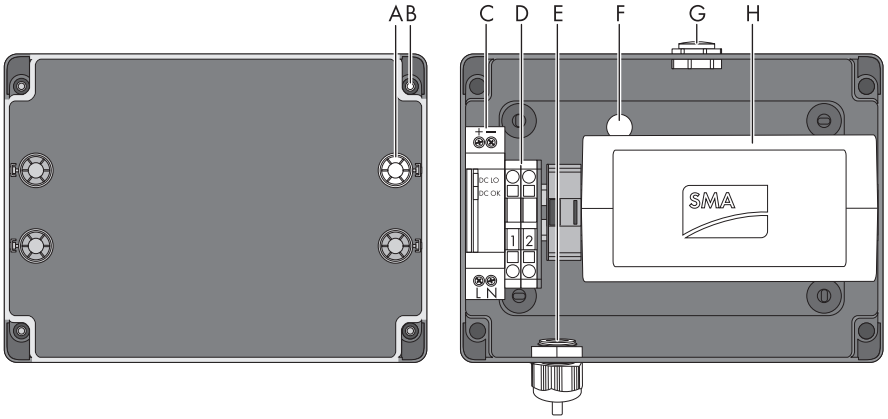


Figure 4: Overview of the enclosure elements (with enclosure lid (left-hand) and enclosure bottom (right-hand))

Item	Description
A	Seal
B	Enclosure lid screw
C	Top-hat rail power supply unit*
D	Feed-through terminal for the connection to the voltage supply
E	Enclosure opening for voltage supply
F	Opening with self-adhesive membrane for pressure equalisation
G	Screw seal with screwable seal insert, by means of which there is access to the rotary switches **MODE** and **NetID**
H	*Bluetooth* Repeater

* only included in order option top-hat rail power supply unit

Do not damage or remove the self-adhesive membrane

The self-adhesive membrane is a pressure membrane balance element, e. g. for heat generation in the inside of the enclosure, and ensures the tightness of the enclosure in accordance with the degree of protection IP54* .

* according to IEC 60529

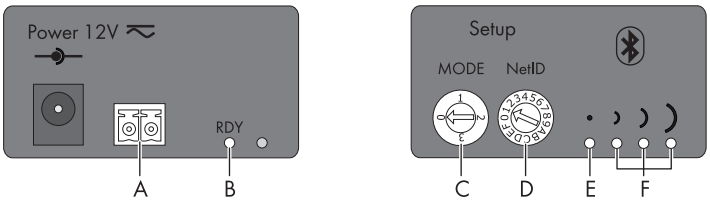


Figure 5: Overview of the device elements on the *Bluetooth* Repeater Outdoor

Item	Description	Colour	Explanation
A	–	–	Terminal DC source (top-hat rail power supply unit or Power Modul)
B	**RDY**	Green	LED for voltage supply
C	**MODE**	–	Rotary switch for configuring the MODE
D	**NetID**	–	Rotary switch for configuring the NetID
E	–	Blue	*Bluetooth* LED
F	–	Yellow	*Bluetooth* LEDs

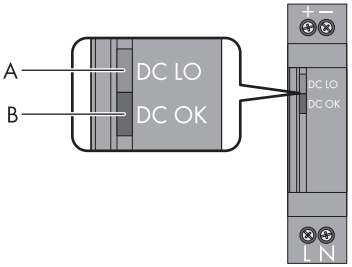


Figure 6: Overview of the LEDs of the top-hat rail power supply unit

Item	Description	Colour	Explanation
A	**DC LO**	Yellow	LED for voltage supply
B	**DC OK**	Green	LED for voltage supply

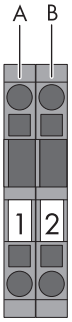


Figure 7: Overview of the terminals on the feed-through terminal

Item	Description
A	Terminal **1** for the connection of the voltage supply cable
B	Terminal **2** for the connection of the voltage supply cable

5 Assembly

5.1 Selecting the Mounting Location

Requirements for the mounting location:

- ☐ If the top-hat rail power supply is used, the mounting location must be in the vicinity of a socket-outlet in the interior area.
- ☐ The mounting location must be protected against dust, moisture and corrosive substances.

Observe the maximum cable length:

- ☐ If a Power Module is used, observe the maximum cable length of 10 m for the voltage supply cable.

Observe minimum clearances:

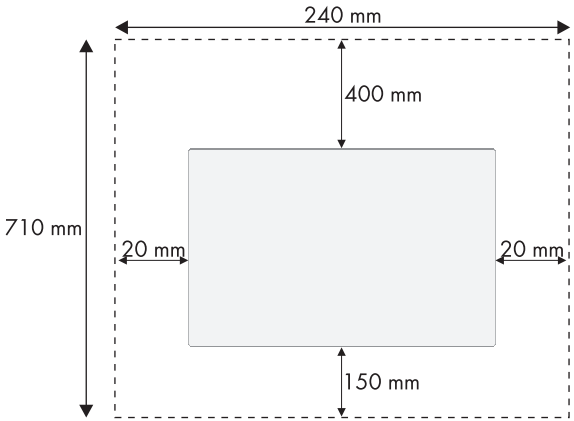


Figure 8: Minimum clearances to be observed

- Observe the minimum clearance to walls and other devices or objects.
- Observe the minimum clearance of 1 m to devices using the 2.4 GHz frequency band, e. g. WLAN devices or microwave ovens. This is to prevent any reduction in connection quality or data transmission speed.

Determining the Mounting Location

Determine the mounting location by varying the distance between the *Bluetooth* Repeater Outdoor and devices with a critical connection signal until all devices display at least a "good" signal.

Requirements:

☐ The rotary switch **MODE** is at position **0** (see Section 7.1 "Setting the MODE", page 23).

☐ The rotary switch **NetID** is set to the NetID of the plant (see Section 7.2 "Setting the NetID", page 23).

⚠ DANGER

Danger to life due to electric shock when opening the inverter

Lethal voltages are present in the conductive parts of the inverter.

- Prior to performing any work on the inverter, disconnect the inverter from any voltage sources on the AC and DC sides (see inverter installation manual). Observe the waiting time to allow the capacitors to discharge.

1. Decommission the plant (see the manual of the inverter and of the communication product). Thus, you ensure that the *Bluetooth* Repeater Outdoor is integrated into the SMA *Bluetooth* network at the point where the dead zone is, thus improving the *Bluetooth* connection at that point.
2. Position the *Bluetooth* Repeater Outdoor half way between the devices with critical connection quality.
3. Connect the voltage supply (see Section 6 "Electrical Connection", page 19).
4. Recommission the plant (see the installation manual of the inverter and of the communication product).
5. Repeat the plant search with the communication device (see the communication product manual, e.g. Sunny Beam with *Bluetooth,* Sunny Explorer).

6. Check that the connection quality for all devices is at least "good". During this procedure, all devices must be in their usual positions (e.g., the Sunny Beam with *Bluetooth* must not be held directly in front of the *Bluetooth* Repeater Outdoor):

Product	Good connection quality
Bluetooth Repeater Outdoor	One blue and two yellow LEDs are lit
Sunny Boy of the type SB x000TL-2x and SB xx00HF-30, Sunny Tripower of the type STP xx000TL-10	At least two rings are shown in the inverter display
Other types of SMA inverters with *Bluetooth* Piggy-Back or *Bluetooth* Piggy-Back Plus	Use the communication product to check whether the connection signal is improved by using the *Bluetooth* Repeater Outdoor (see manual of the communication product)
Communication product	See manual of the communication product

☑ The connection quality displayed is at least "good" for all devices. Mount the *Bluetooth* Repeater Outdoor there at this location.

✖ The connection quality displayed is not at least "good" for all devices?

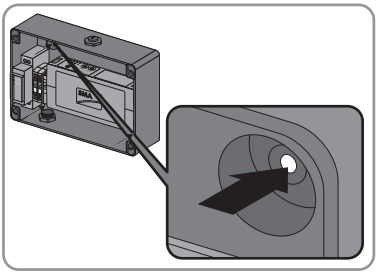
- Move the *Bluetooth* Repeater Outdoor to another position and check the connection signals again.
- If necessary, install additional SMA *Bluetooth* Repeater Outdoor devices.

5.2 Mounting the *Bluetooth* Repeater Outdoor on the Wall

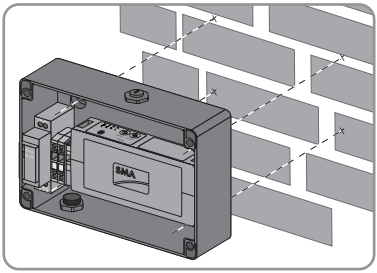
Requirement:

☐ *Bluetooth* Repeater Outdoor must be disconnected.

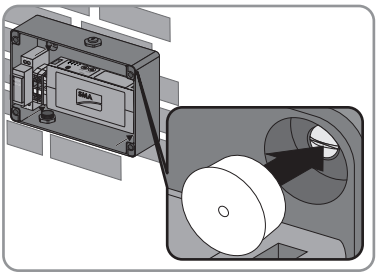
1. Loosen the screws of the enclosure lid and remove the lid.
2. Drill holes through the indentation in the enclosure edges. Use a drill bit (4 mm) for this purpose.



3. Mark the holes with the help of the pre-drilled holes in the enclosure on the wall.
4. Drill the holes at the marked positions.



5. Attach the *Bluetooth* Repeater Outdoor to the wall using wall plugs and screws
6. Remove the seals from the inside of the enclosure lid and press them onto screws.



7. Reattach the enclosure lid using the enclosure lid screws.

6 Electrical Connection

6.1 Connecting the *Bluetooth* Repeater Outdoor with Top-Hat Rail Power Supply Unit to the Voltage Supply

⚠ DANGER

Danger to life due to electric shock in the event of missing separators and missing fuses on the AC cable

- The AC cable used for the connection must have a separator.
  - In the case of an alternating current supply by means of an IT system the separator must have two poles in accordance with IEC 60364-1.
- The separator must be easily accessible.
- If the separator is a plug-connection, the socket-outlet must be situated in close proximity to the *Bluetooth* Repeater Outdoor.
- The AC cable used for the connection must be equipped with a fuse (16 A for Europe and 20 A for the US and Canada).

⚠ DANGER

Danger to life due to electric shock in the event of mixing up the *Bluetooth* Repeater Outdoor

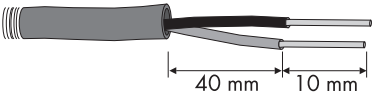
Only the *Bluetooth* Repeater Outdoor of the device type „BTREP-OUT.GR1" is allowed to be connected via the top-hat rail power supply unit to the alternating current grid.

- Ensure that the *Bluetooth* Repeater Outdoor is of device type „BTREP-OUT.GR1" before connecting it to the alternating current grid. To do so, check the type label on the *Bluetooth* Repeater Outdoor (see Section 3.3 "Identifying the SMA Bluetooth Repeater Outdoor", page 10).

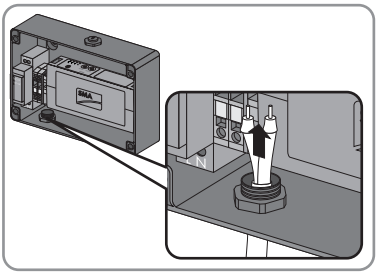
Requirements for the connection cable:

- ☐ Number of insulated wires: 2
- ☐ Cable cross-section: 1 mm^2 ... 2.5 mm^2
- ☐ External diameter: 5 mm ... 10 mm
- ☐ Cable must be suitable for outdoor installations.
- ☐ Cable must be UV resistant.
- ☐ If a grid connection plug is used in outdoor installations: Grid connection plug must be suitable for outdoor installations.

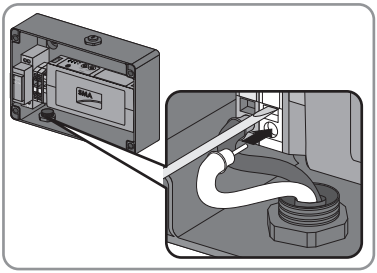
1. Loosen the screws of the enclosure lid and remove the lid.
2. Unscrew the nut from the lower left corner of the cable gland and push out the filler-plug.
3. Preparing the cable:
   - Remove 40 mm of the cable sheath from the side of the *Bluetooth* Repeater Outdoor.
   - Shorten unused insulated wires flush with the cable sheath.
   - Strip approx. 10 mm off the wires.



4. Insert the cable into the enclosure through the nut and the cable gland.



5. Connecting the cable to the feed-through terminal in the enclosure:
   - Push the terminal **1** and terminal **2** of the feed-through terminal open using a screwdriver (2.5 mm).
   - Connect the conductor to terminal **1** and the insulator to terminal **2.**

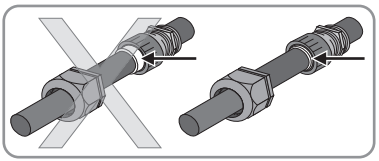


6. Separate the AC grid connection point from the alternating current grid using the separator. Thus you ensure that there is no voltage present at the AC grid connection point.
7. Connect the *Bluetooth* Repeater Outdoor to the voltage supply.
   - Plug the grid connection plug into the socket-outlet, if a grid connection plug is used.
   - If no grid connection plug is used, connect the other end of the cable to the voltage supply as desired, e.g. via a cable junction box.
8. Connect the AC grid connection point to the AC grid using the separator.

   ☑ LED **DC OK** of the top-hat rail power supply unit and LED **RDY** of the *Bluetooth* Repeater Outdoor are glowing green

   ✖ LED **DC LO** of the top-hat rail power supply unit or LED **RDY** are not in operation or are glowing yellow?
   - Rectify the fault (see Section 10.1 "Voltage Supply", page 27).

9. Check whether the cable gland seal is correctly in place. The seal must not protrude over the cable gland.



10. Hand-tighten the nut to the cable gland. Tighten the nut with a torque of 0.8 Nm thus securing the cable.
11. Reattach the enclosure lid using the enclosure lid screws.

6.2 Connecting the *Bluetooth* Repeater Outdoor to the Voltage Supply

⚠ DANGER

Danger to life due to electric shock when opening the inverter

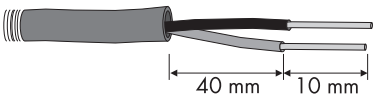
Lethal voltages are present in the conductive parts of the inverter.

- Prior to performing any work on the inverter, disconnect the inverter from any voltage sources on the AC and DC sides (see inverter installation manual). Observe the waiting time to allow the capacitors to discharge.

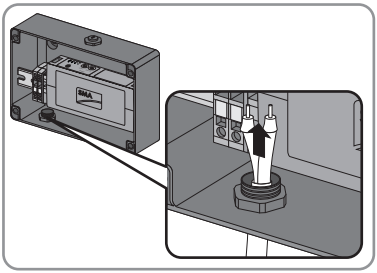
Requirement:

☐ The Power Module is installed in the inverter (see Power Module installation manual).

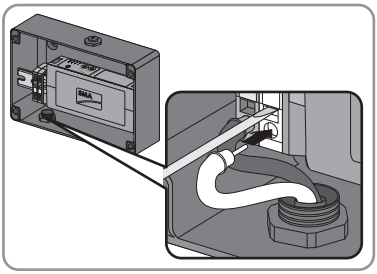
1. Loosen the enclosure lid screws and remove the enclosure lid from the *Bluetooth* Repeater Outdoor.
2. Unscrew the nut from the lower left corner of the cable gland of the enclosure and push the filler-plug out of the nut.
3. Preparing the cable:
   - Remove 40 mm of the cable sheath from the side of the *Bluetooth* Repeater Outdoor.
   - Shorten unused insulated wires flush with the cable sheath.
   - Strip approx. 10 mm off the wires.



4. Insert the cable into the enclosure through the nut and the cable gland.



5. Connecting the cable to the feed-through terminal in the inside of the enclosure:
   - Push the terminal **1** and terminal **2** of the feed-through terminal open using a screwdriver (2.5 mm).
   - Connect the wires of the cable to terminal **1** and terminal **2**. The polarity is arbitrary.



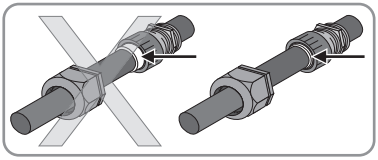
6. Recommission the inverter with installed Power Module (see inverter manual).

   ☑ LED **RDY** is glowing green.

   ✖ The LED **RDY** is off or flashing?

   - Rectify the fault (see Section 10.1 "Voltage Supply", page 27).

7. Check that the cable gland seal is correctly in place. The seal must not protrude over the cable gland.



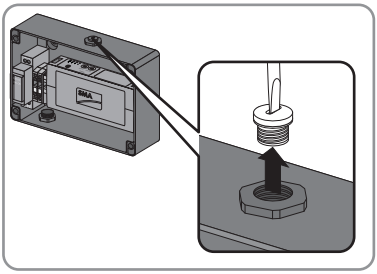
8. Hand-tighten the nut to the cable gland. Tighten the nut with a torque of 0.8 Nm thus securing the cable.
9. Reattach the enclosure lid using the enclosure lid screws.

7 Settings

7.1 Setting the MODE

The **MODE** rotary switch is set to the position **0** for delivery. Other positions are not permitted and are intended for SMA Service only.

- If the **MODE** rotary switch is not positioned correctly, set the correct position:
  - Remove the seal insert of the screw seal from the top of the *Bluetooth* Repeater Outdoor using a screwdriver (2.5 mm). Thus you can see the **MODE** rotary switch in the inside of the enclosure and reach it using the screwdriver (2.5 mm).



  - Turn the arrow of the **MODE** rotary switch to the correct position using a screwdriver (2.5 mm).
  - Insert the seal insert of the screw seal and tighten it using a screwdriver (2.5 mm). This ensures the degree of protection IP54.

7.2 Setting the NetID

The NetID serves to distinguish PV plants with SMA *Bluetooth* operating in close proximity to one another. All devices in a PV plant must have the same NetID. You can set the SMA *Bluetooth* Repeater Outdoor to the **NetID** of your plant using the "NetID" rotary switch.

Assignment of the rotary switch positions*	
NetID	**Function**
0	*Bluetooth* is switched off.
1 (Default setting)	*Bluetooth* is switched on. The device can connect to a maximum of two communication products. The device cannot connect to other inverters or SMA *Bluetooth* Repeaters.
2 ... 9 and A ... F	*Bluetooth* is switched on. The device can interlink with all SMA *Bluetooth* products with the same NetID.

* See Section 10.2 for information on the status of the *Bluetooth* LEDs.

NetID 1 is possible for plants with 1 inverter

You may leave the default NetID set to 1 in your inverter if your *Bluetooth* plant consists of the following products:

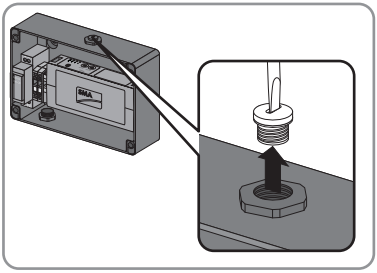
- A maximum of one inverter
- A maximum of one computer with *Bluetooth* and the Sunny Explorer software
- A maximum of one Sunny Beam of type BEAM-BT-11.GR1

or

- A maximum of one inverter
- A maximum of 2 Sunny Beams of type BEAM-BT-11.GR1

In all other cases you must determine a free NetID (see Sunny Explorer Help).

1. If you do not know the plant NetID, read off the NetID from one of the devices in the plant (see the manual of the device).
2. Remove the seal insert of the screw seal from the top of the enclosure of the *Bluetooth* Repeater Outdoor with a screwdriver (2.5 mm). Thus you can see the **NetID** rotary switch and the *Bluetooth* LEDs in the inside of the enclosure.



3. Use a screwdriver (2.5 mm) to turn the arrow of the **NetID** rotary switch to the plant NetID.
4. Insert the seal insert of the screw seal and tighten it using a screwdriver (2.5 mm). This ensures the degree of protection IP54.

8 Maintenance and Care

- Check the *Bluetooth* Repeater Outdoor regularly for external damage or soiling.
- If external damage to the *Bluetooth* Repeater Outdoor is severe enough to impair correct function, replace the *Bluetooth* Repeater Outdoor.
- If the *Bluetooth* Repeater Outdoor is soiled, clean the *Bluetooth* Repeater Outdoor using only a slightly damp cloth. Any cleaning agents used must be non-abrasive and non-corrosive.

9 Decommissioning

9.1 Detaching the *Bluetooth* Repeater From The Wall.

1. When connecting to the AC grid separate the *Bluetooth* Repeater Outdoor from the voltage supply using the separator and check that there is no voltage present in the cable. When a grid connection plug is used remove it from the socket-outlet.
2. Remove the cable gland of the Power Module for the connection to the Power Module (see installation manual of the Power Module).
3. Loosen the screws of the enclosure lid and remove the lid.
4. Remove the screws of the enclosure from the wall and take down the *Bluetooth* Repeater Outdoor.
5. Remove the cable from the feed-through terminal in the inside of the enclosure.
   - Push open terminal **1** and terminal **2** of the feed-through terminal using a screwdriver (2.5 mm)
   - Pull out the wires of the cable.
   - Remove the cable from the enclosure. To do this, unscrew the nut from the lower left corner of the cable gland of the enclosure and pull out the cable gland from the enclosure.
6. Reattach the enclosure lid using the enclosure lid screws.

9.2 Packing the *Bluetooth* Repeater Outdoor

- Pack the *Bluetooth* Repeater Outdoor using the original packaging or packaging that is suitable for the weight and size of the *Bluetooth* Repeater Outdoor (see Section 11 "Technical Data", page 32).

9.3 Disposing of the SMA *Bluetooth* Repeater

- Dispose of the *Bluetooth* Repeater Outdoor in accordance with the locally applicable disposal regulations for electronic waste.

  or

  Send the *Bluetooth* Repeater Outdoor back to SMA Solar Technology AG with shipping paid by sender. When doing so, label the packaging "ZUR ENTSORGUNG" ("FOR DISPOSAL").

10 Troubleshooting

10.1 Voltage Supply

10.1.1 LED RDY

The LED **RDY** is only visible when the enclosure lid is open.

- In order to open the enclosure lid loosen the four enclosure lid screws.

Status	Meaning	Measure
permanently glowing green	The supply voltage is good. *Bluetooth* Repeater Outdoor is in operation.	None
flashes green and all other LEDs are switched off.	Power supply is marginal. *Bluetooth* Repeater Outdoor is in operation.	**If you are using the top-hat rail power supply unit:** • Contact the SMA Service Line.
		If you are using the Power Module: • If you are using the cable included in the delivery: – Contact the SMA Service Line. • If you are using a different cable: – Improve the power supply via one of the following measures: – Shorten the cable. – Choose a larger cable cross-section.
flashes green and all other LEDs are flashing	The *Bluetooth* Repeater Outdoor firmware is defective.	• Contact the SMA Service Line.

Status	Meaning	Measure
off	No power supply or the power supply is too low. The *Bluetooth* Repeater Outdoor is not in operation.	**If you are using the top-hat rail power supply unit:** Check whether the socket-outlet is supplying voltage. • Do this, for example, by connecting a different device to the socket-outlet. If the socket-outlet is providing voltage, then either the top-hat rail power supply unit or the *Bluetooth* Repeater Outdoor is defective. – Contact the SMA Service Line.
		If you are using the Power Module: • If you are using the cable included in the delivery: – Contact the SMA Service Line. • If you are using a different cable: – Check the wiring. If the wiring is correct, either the Power Module or the *Bluetooth* Repeater Outdoor is defective. – Contact the SMA Service Line.

10.1.2 LEDs of the Top-Hat Rail Power Supply Unit

The LEDs of the top-hat rail power supply unit are only visible when the enclosure lid is opened.

- In order to open the enclosure lid loosen loosen the four enclosure lid screws.

Status	Meaning	Measure
The LED **DC OK** is glowing green and the LED **DC LO** is switched off.	The supply voltage is good. *Bluetooth* Repeater Outdoor is in operation.	None
The LED **DC OK** is switched off and the LED **DC LO** is glowing yellow	The supply voltage is too low. The *Bluetooth* Repeater Outdoor is not in operation.	Check whether the socket-outlet is supplying voltage. • Do this, for example, by connecting a different device to the socket-outlet. If the socket-outlet is providing voltage, then either the top-hat rail power supply unit or the *Bluetooth* Repeater Outdoor is defective. – Contact the SMA Service Line.
Both LEDs are switched off.	No supply voltage The *Bluetooth* Repeater Outdoor is not in operation.	Check whether the socket-outlet is supplying voltage. • Do this, for example, by connecting a different device to the socket-outlet. If the socket-outlet is providing voltage, then either the top-hat rail power supply unit or the *Bluetooth* Repeater Outdoor is defective. – Contact the SMA Service Line.

10.2 Connection Quality

The *Bluetooth* Repeater Outdoor can only display the connection quality if it is integrated into an existing SMA *Bluetooth* network. The SMA *Bluetooth* network can only be established by a master*. Devices will always display the connection signal to the device from which the connection has been established.

***Bluetooth* LEDs**			
Status		**Meaning**	**Measure**
blue LED	**yellow LEDs**		
● permanently lit	●●● 3 LEDs are permanently lit	Connection quality very good	None
	●●⊗ Two LEDs are permanently lit	Connection quality good	None
	●⊗⊗ One LED is permanently lit	Connection quality is unreliable	• Change the position of the *Bluetooth* Repeater Outdoor. **or** • Install additional *Bluetooth* Repeater Outdoor devices.
	⊗⊗⊗ Three LEDs off	Connection quality critical	

* "Master" is a network engineering term. In a network, a master is a device that for example requests other devices (slaves) to receive or send data. All communication products (e.g. Sunny Explorer, Sunny Beam with *Bluetooth*) are masters in an SMA *Bluetooth* network.

***Bluetooth* LEDs**			
Status		**Meaning**	**Measure**
blue LED	**yellow LEDs**		
⊗ off	⊗⊗⊗ Three LEDs off	The *Bluetooth* Repeater Outdoor is not connected to the *Bluetooth* network:	• Check the NetID. • Change the position of the *Bluetooth* Repeater Outdoor or install additional *Bluetooth* Repeater Outdoor devices.
		There is no device with the same NetID within the radio range.	
		The SMA *Bluetooth* network has not been established. Only masters, e.g. communication products, initiate network establishment.	• Commission a master in the SMA *Bluetooth* network.
	Three LEDs are flashing	The **NetID** rotary switch is set to position **1** or **0**.	• Set the **NetID** rotary switch to the NetID of your plant (see Section 7.2).
is flashing and **RDY** LED is flashing green	Three LEDs are flashing	The *Bluetooth* Repeater Outdoor firmware is defective.	• Contact the SMA Service Line.

11 Technical Data

General Data

Width x height x depth	200 mm x 160 mm x 93 mm
Weight with top-hat rail power supply unit	800 g
Weight with Power Modul	740 g
Mounting location	outdoors
Type of mounting	Wall mounting
Status display	LEDs
Degree of protection*	IP54
Certified countries	All EU Member States

* according to IEC 60529

Voltage Supply via Top-Hat Rail Power Supply Unit

Input voltage	100 V ... 240 V AC
Tolerance value for input voltage	± 10%
Frequency of input voltage	47 Hz ... 63 Hz
Typical power consumption	1.8 W
Maximum power consumption	2.5 W
Overvoltage category	II

Voltage Supply via the Power Module

Input voltage	12 V ... 24 V AC/DC
Tolerance value for input voltage	± 20%
Typical power consumption	0.6 W
Maximum power consumption	1.5 W

Environmental Conditions in Operation

Ambient temperature	– 25°C ... +60°C
Relative humidity, non-condensing	4% ... 100%
Altitude above mean sea level (MSL)	0 m ... 2,000 m

Ambient Conditions for Storage/Transport

Ambient temperature	– 40°C ... +70°C
Relative humidity, non-condensing	10% ... 95%
Altitude above mean sea level (MSL)	0 m ... 2,000 m

Communication

Inverter	*Bluetooth*
Data logger	*Bluetooth*
Range in open air	≤ 100 m

12 Contact

If you have technical problems concerning our products, please contact the SMA Service Line. We require the following information in order to provide you with the necessary assistance:

- Type, serial number and firmware version of the inverter
- Serial number of the communication product
- Firmware version or software version of the communication product
- Serial number and firmware version of the *Bluetooth* Repeater Outdoor

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Declaration of Conformity

SMA Solar Technology AG hereby declares that the described device / devices fulfill the essential requirements and other relevant rules of Directive 1999/5/EC. The entire Declaration of Conformity can be found at www.SMA.de.

SMA Factory Warranty

The current warranty conditions come enclosed with your device. These are also available online at www.SMA-Solar.com and can be downloaded and are available on paper from the usual sales channels if required.

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